

Application Serial No.: 10/799,504
Attorney Docket No.: 0160116

REMARKS

This Amendment and Response is in response to the *Non-Final* Office Action of February 7, 2005, where the Examiner has rejected claims 1-21. By the present amendment, claims 1-21 have been amended. After the present amendment, claims 1-21 are pending in the present application. Reconsideration and allowance of outstanding claims 1-21 in view of the following remarks are requested.

A. Objection to the Claims

The Examiner has objected to claim 2, because "speech signal" should read --a speech signal--. By the present amendment, applicant has amended claim 2 accordingly. Therefore, applicant respectfully submits that the Examiner's objection to claim 2 has been overcome.

B. Rejection of Claims 1-21 under 35 USC §103(a)

The Examiner has rejected claims 1-21 under 35 USC §103(a) as being unpatentable over Kurittu, et al. (US Publication No. 2004/0120309) ("Kurittu") in view of Iijima, et al. (US Patent No. 5,909,663) ("Iijima").

Applicant respectfully submits that the cited references fail to disclose, teach or suggest claims 1-21, as amended. Claim 1, as amended, recites a method for recovering a speech frame, the method comprising:

obtaining a first current input speech frame;

reconstructing said first current input speech frame from a previous input speech frame to generate a reconstructed first current input speech frame in response to an indication that said first current input speech frame has not been properly received;

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obtaining a second current input speech frame immediately following said first current input speech frame;

time warping said second current input speech frame and said reconstructed first current input speech frame to coincide a peak of said second current input speech frame with a peak of said reconstructed first current input speech frame while maintaining an intersection point of said second current input speech frame with a third current input speech frame immediately following said second current input speech frame, wherein said time warping generates a time-warped second current input speech frame and a time-warped reconstructed first current input speech frame; and

creating a new second current input speech frame by overlapping-and-adding said time-warped second current input speech frame and said time-warped reconstructed first current input speech frame.

Furthermore, for example, figure 4 of the present application and its related written description support claim 1, as amended, as follows:

As illustrated in Figure 4, time history 420 is the actual received data (see Figure 2) showing the lost frame 202. Time history 410 is a pseudo received data constructed from the received data. Time history 410 is constructed in real-time by placing a copy of received frame 201 into frame slot 202 as frame 201A and into frame slot 203 as frame 201B. Note that frame 203, frame 204, and frame 205 arrive properly in real-time and are correctly received in this illustration. (Page 7, lines 19-24.)

The process involves continuously time warping frames 201B of 410 and frame 203 of 420 so that their peaks, 411 and 421, coincide in time while maintaining the intersection point (e.g. endpoint 422) between frames 203 and 204 fixed. For instance, peak 411 may be stretched forward (as illustrated by arrow 414) in time by some delta while peak 421 is stretched backward (as illustrated by arrow 424) in time. The intersection point 422 must be maintained because the next frame (e.g. 204) may be a correct frame and it is desired to keep continuity between the current frame and the correct next frame, as in this illustration. After time-warping, an overlap-add of the two signals of the warped frames may be used to create the new frame. Line 413 fades out the reconstructed previous frame while line 423 fades in the current frame. (Page 7, line 25, Page 8, line 9.)

Applicant respectfully submits that Kurittu does not come close to disclosing, teaching or suggesting various limitations of claim 1, as amended. For example, Kurittu fails to disclose

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"time warping said second current input speech frame and said reconstructed first current input speech frame to coincide a peak of said second current input speech frame with a peak of said reconstructed first current input speech frame while maintaining an intersection point of said second current input speech frame with a third current input speech frame immediately following said second current input speech frame." It is respectfully submitted that Kurittu merely states that 30 samples in the history buffer are overlap added with 30 samples preceding the synthetic waveform. (See Paragraph 88.) The Examiner should note that claim 1, as amended, goes on to read "creating a new second current input speech frame by overlapping-and-adding said time-warped second current input speech frame and said time-warped reconstructed first current input speech frame." Therefore, the overlap and add operation of Kurittu cannot cover both "time warping" and "overlapping-and-adding" operations of claim 1, as amended. More importantly, "time warping" is well known in the art to be different than the overlap and add operation. Furthermore, Kurittu does not come close to disclosing, teaching or suggesting that a second current input speech frame immediately following said first current input speech frame (which was not properly received, e.g. lost) and the reconstructed first current input speech frame are time warped to coincide a peak of said second current input speech frame with a peak of said reconstructed first current input speech frame while maintaining an intersection point of said second current input speech frame with a third current input speech frame immediately following said second current input speech frame. It is respectfully submitted that other cited references do not disclose, teach or suggest such limitations either.

Accordingly, applicant respectfully submits that claim 1, as amended, and its dependent claims 2-7 should be allowed. Further, independent claims 8 and 15 have been amended to

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include limitations similar to those of claim 1, as amended. Accordingly, claims 8 and 15, as amended, and their respective dependent claims 9-14 and 16-21 should also be allowed.

C. Conclusion

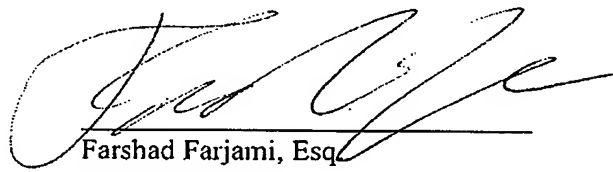
Based on the foregoing reasons, an early Notice of Allowance directed to all claims 1-21 pending in the present application is respectfully requested.

Respectfully Submitted,
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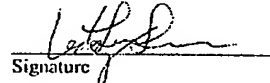

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